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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 10/807,132 | 03/22/2004 | Jui-Fen Pai | 250112-1080 | 3684 |
| 24504 | 7590 | 06/19/2006 | | EXAMINER |
| THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948 | | | MICHENER, JENNIFER KOLB | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1762 | |

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/807,132 | PAI, JUI-FEN | |
| | Examiner | Art Unit | |
| | Jennifer K. Michener | 1762 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 April 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 15-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 15-32 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/22/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Claims 1-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention. Election was made **without** traverse in the reply filed on 4/19/2006. Examiner notes with appreciation Applicant's cancellation of non-elected claims, which advances prosecution.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For clarity, Examiner suggests spelling out the meaning of abbreviation "DLC" in claim 15.

In claim 15, it is not clear how the grinding and polishing step removes the third noble layer if the oxygen plasma has already removed the third noble layer.

Claim 15, lines 10-11 require that the second passivation layer (which is formed on the fourth noble metal layer) be "approximately the same material as the passivation film

overlying the fourth noble metal layer". It appears that the second passivation film would be exactly the same as the passivation film overlying the fourth noble metal layer because they are referring to the same film. Examiner suggests that perhaps Applicant intended to state that this new or second passivation film be approximately the same as the previous passivation film formerly overlying the third noble metal layer.

Additionally, "approximately the same material" in claims 15 and 24 is vague and indefinite. While Examiner asserts that something that is exactly the same would also be "approximately the same", the upper bound of this range is indeterminate. How similar must it be?

Similarly, the term "approximate" regarding superlattice structure in claims 22 and 25 is unclear.

Claim 17 depends from cancelled claim 1.

There is no antecedent basis for "intermediate" layer of claim 21.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 15-16, 18-25, 27-28, 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted State of the Prior Art (AASPA) in view of Aoki (cited by Applicant).

AASPA states that it was known in the art to renew a molding die comprised of a DLC passivation film overlying an intermediate layer by removing the DLC layer using oxygen plasma and grinding the intermediate layer. AASPA states that the intermediate layer is very thick such that renewing that layer is time-intensive.

AASPA discloses that Ir-Re-C alloys are known for use on molding dies, but that such layers are only able to be removed by grinding.

Aoki teaches a tungsten carbide mold with a plurality of noble metal layers containing Ir, Re, and C.

It would have been obvious to one of ordinary skill in the art to use the renewing method of AASPA in the method of Aoki to provide Aoki with a method of reusing his molds.

It would have been obvious to place the AASPA's DLC coating on the traditional noble metal layers of Aoki so that Aoki's molds could be renewed with the simple oxygen plasma/grinding step of the uppermost layers layers only, being less time-intensive. The use of Aoki's Ir-Re-C noble material for three layers would meet the limitation of "noble" first layer, a "noble" second layer, and a "carbon-containing third noble metal layer" of Applicant.

It is Examiner's position that "cleaning" a polished metal would have been known to an ordinary artisan in the coating art to remove debris that would decrease adhesion.

Additionally, when renewing a coated glass mold after removing the passivation film and some part of the noble layer, it would be understood to replace said upper noble layer and passivation film with similar layers such that the mold could be recycled time and again.

Aoki teaches a tungsten carbide substrate.

While AASPA in view of Aoki does not outlined the coating thickness, it is Examiner's position that selection of a coating thickness would have been within the skill of an ordinary artisan as the thickness would determine the amount of protection afforded the substrate.

It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Aoki appears to teach the same Ir-Re-C alloy, which would appear to be "approximately arranged as superlattice".

Aoki's layers contain 20-50% carbon, overlapping Applicant's range of 20% or more.

7. Claims 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over AASPA in view of Aoki as applied to claims 15-16, 18-25, 27-28, 30-32 above, and further in view of Hirota, as supplied by Applicant.

AASPA in view of Aoki teach that which is disclosed above, but fail to teach a method for providing layers to glass molds.

Hirota teaches sputtering or ion plating the carbon-based coatings for glass mold dies. It would have been obvious to an ordinary artisan to use Hirota's metal coating method for glass mold dies in the method of AASPA in view of Aoki to provide AASPA in view of Aoki with a suitable method to coat glass mold dies with similar materials on similar substrates.

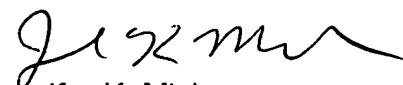
Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wang teaches a glass mold comprising a W-C substrate with plural noble intermediate layers and a carbide passivation film.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer K. Michener whose telephone number is (571) 272-1424. The examiner can normally be reached on Monday through Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jennifer K. Michener
Primary Examiner
Art Unit 1762
June 14, 2006